

Grade 7 Hosts Guest Speaker – Mr. Stephen O'Connell

October is STEM (Science, Technology, Engineering & Mathematics) Month at the IES! Mrs. Rachel Usher's students began STEM Month with a focus on technology and engineering. They were introduced to the engineering design process when they completed the Marshmallow Challenge. Teams of 3-4 students received 20 pieces of spaghetti, 1 yard of string, 1 yard of tape, and a marshmallow. The challenge was to build the tallest freestanding structure with the marshmallow on top. This activity focused on the importance of working cooperatively in groups and the need to create prototypes and re-design. Once students were given the chance to re-design, the percentage of freestanding structures increased by 25% and the tallest freestanding structure jumped 69 cm to 85 cm!



Above: Anna Lapolt, Nathaniel Green, Clark Bishop & Patrick Peloquin worked as a team on the Marshmallow Challenge.



Above: Morgan Benoit, Margaret Gurney & Colleen Chapman collaborated on the Marshmallow Challenge.

Students also tested their habitats (described above) in Science classes to see if they could withstand weak wind and rain. All habitats withstood mild wind and rain, but when they were put to the test of intense wind....see what happened! (See pictures below)



Before



After



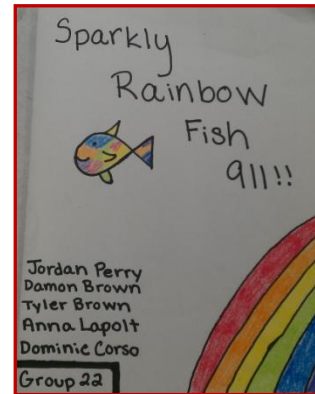
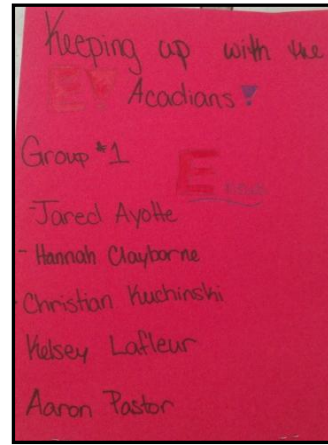
Before



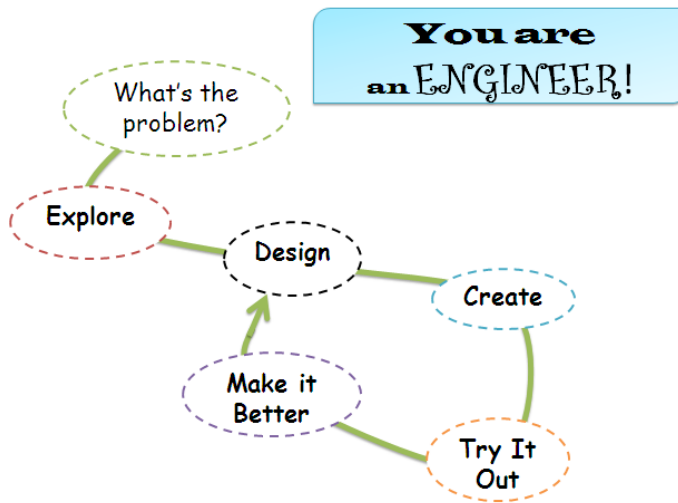
After



The Strongest Habitats



Examples of STEM Survival Day portfolios.



material for their solar oven, taking into account the environmental impact.

As they prepare to engineer solar ovens, students studied heat transfer and conducted an experiment to test the thermal properties of various materials such as aluminum, felt, foam, paper and plastic.

The goal is for them to determine the best insulating material's



Above: Seventh grade students conducting an experiment on the thermal properties of materials.



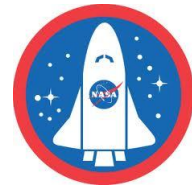
Students work in groups to analyze the heat loss when their material was placed in an ice bath.



In conjunction with STEM Month, students participated in two NASA web conferences. On Wednesday, Oct. 27th, the web conference focused on STEM careers at NASA. The conference began with NASA presenter David Alexander explaining the difference between a job and a career. He then discussed a variety of careers at NASA ranging from accounting to engineering, and what they entail in terms of educational preparation and job duties. Students had the chance to ask questions of Mr. Alexander as well. The presenter shared excellent positive messages, such as, “Work hard and you can do anything!” He captured the students’ interest when he shared his own personal story of how he achieved his dreams of working for NASA and creating music!



7th grade students participating in a NASA web conference on STEM Careers.



As mentioned earlier, Friday, Oct. 29th was STEM Day for seventh graders! The web conference that day centered on solar energy and the importance of studying it on Earth and in space. Students participated in an interactive presentation with a NASA education specialist at Johnson Space Center in Houston, Texas. They discussed NASA’s plans to set up a solar farm in space so they can harness the most solar energy and beam it to Earth.



7th grade students playing “Simon Says” with kinetic and potential energy.



7th grade students participating in a NASA web conference on solar energy.

Students also attended a special presentation by **Stephen O'Connell**, a principal civil engineer from Andrews Survey & Engineering Inc. in Uxbridge. Mr. O'Connell worked on the 20-acre solar energy project right here in Douglas! He brought a solar panel and an inverter. His interesting and informative presentation described how solar panels harness solar radiation which is then converted into electricity and sent out to homes. The solar project was established to power municipal buildings in Douglas.



Left: Stephen O'Connell, Principal Civil Engineer at Andrews Survey & Engineering Inc., presenting on solar power.



Left: An inverter box that converts DC current to AC current.



Right: Dominic Corso standing near a solar panel.



Thank You, Mr. Stephen O'Connell!

A special thank you to **Mr. Stephen O'Connell** for taking time out of his busy schedule to share his experiences with our students! We would also like to thank **Mrs. Donna Taylor**, Grade 5 Technology & Engineering teacher, for all of her help in recruiting engineers to speak with our students!

A special "Thank You" to the Seventh Grade Team of teachers – Mr. Paul Bolio, Ms. Sharon Fogarty, Mrs. Debbie Simonelli, Mrs. Ellen Reber, Ms. Maria Creedon, Paraprofessionals Ms. Elizabeth White and Ms. Britney Cullen, and especially to Gr. 7 Science teacher Mrs. Rachel Usher, for making STEM Month and STEM Day 2012 such a wonderful success!

